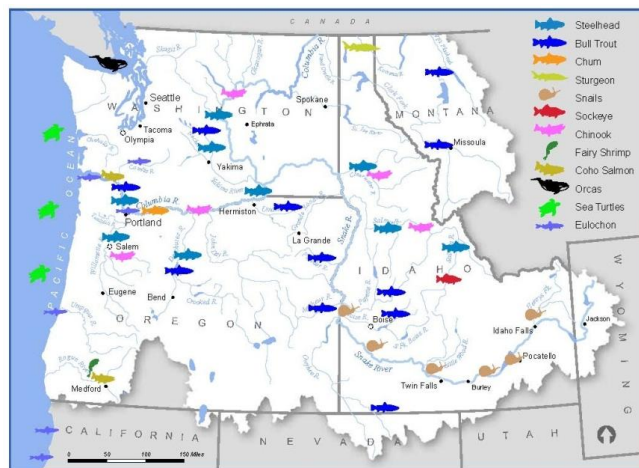


## Columbia/Snake Salmon Recovery Program Tributary Habitat Activities

**Project Summary:** The Bureau of Reclamation participates in planning, developing, and implementing spawning and rearing habitat improvement projects in collaboration with local watershed groups in several Columbia River tributaries in the Pacific Northwest to improve the survival of salmon and steelhead trout listed as threatened or endangered under the Endangered Species Act (ESA). These tributary habitat efforts are associated with a Biological Opinion (BiOp) on operation and maintenance of the Federal Columbia River Power System (FCRPS). The FCRPS BiOp also includes hydrosystem, harvest, hatchery, predator control, and estuary habitat actions intended to improve salmon and steelhead survival. The Bonneville Power Administration, U.S. Army Corps of Engineers, and Reclamation jointly implement the FCRPS BiOp in close collaboration with Pacific Northwest States, and Native American Tribes.



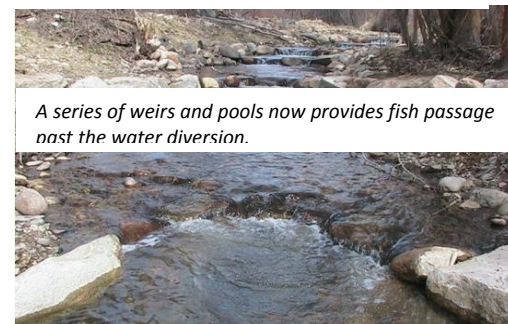
Salmon and steelhead trout are the primary beneficiaries of tributary habitat improvement projects implemented for the Federal Columbia River Power System Biological Opinion in the Columbia River Basin of the Pacific Northwest.

**Strategic Value:** Before settlement in the mid-1800s, the Columbia Basin river system was one of the largest producers of wild salmon and steelhead in the world. The demands of development by a growing population since then contributed to the decline of salmon and steelhead populations. This decline led to the current ESA listing of 13 of the salmon and steelhead species that are born and grow to juveniles within the basin and then migrate to the ocean to become adults. Reversing this decline with habitat improvement actions is one part of the larger efforts intended to increase the overall numbers of salmon and steelhead and provide for a Columbia Basin river system that can support thriving human, salmon, and steelhead populations.

**Benefits:** Improvement to spawning and rearing habitat conditions are intended to increase the number of juveniles that head to the ocean, and ultimately, the number of adults that return to spawn. Fish screen, barrier removal, and channel complexity projects are examples of the types of habitat actions used to improve spawning and rearing habitat. Fish screens are associated with water diversions (or returns) to keep fish in the river and prevent stranding. Removal or replacement of in-stream diversion structures and culverts that block access to quality habitat restores the unimpeded movement of adult and juvenile salmon and steelhead at critical migration times. Channel complexity projects develop pools, resting areas, spawning areas, and in-stream cover and side channel reconnections that increase the amount of in-stream rearing and overwintering habitat. These restoration efforts are part of Reclamation's commitment to provide power and satisfy water delivery obligations by maintaining continued operations at Grand Coulee and Hungry Horse Dams under the 2010 FCRPS Biological Opinion.



This diversion dam was a major barrier to fish passage.



A series of weirs and pools now provides fish passage past the water diversion.